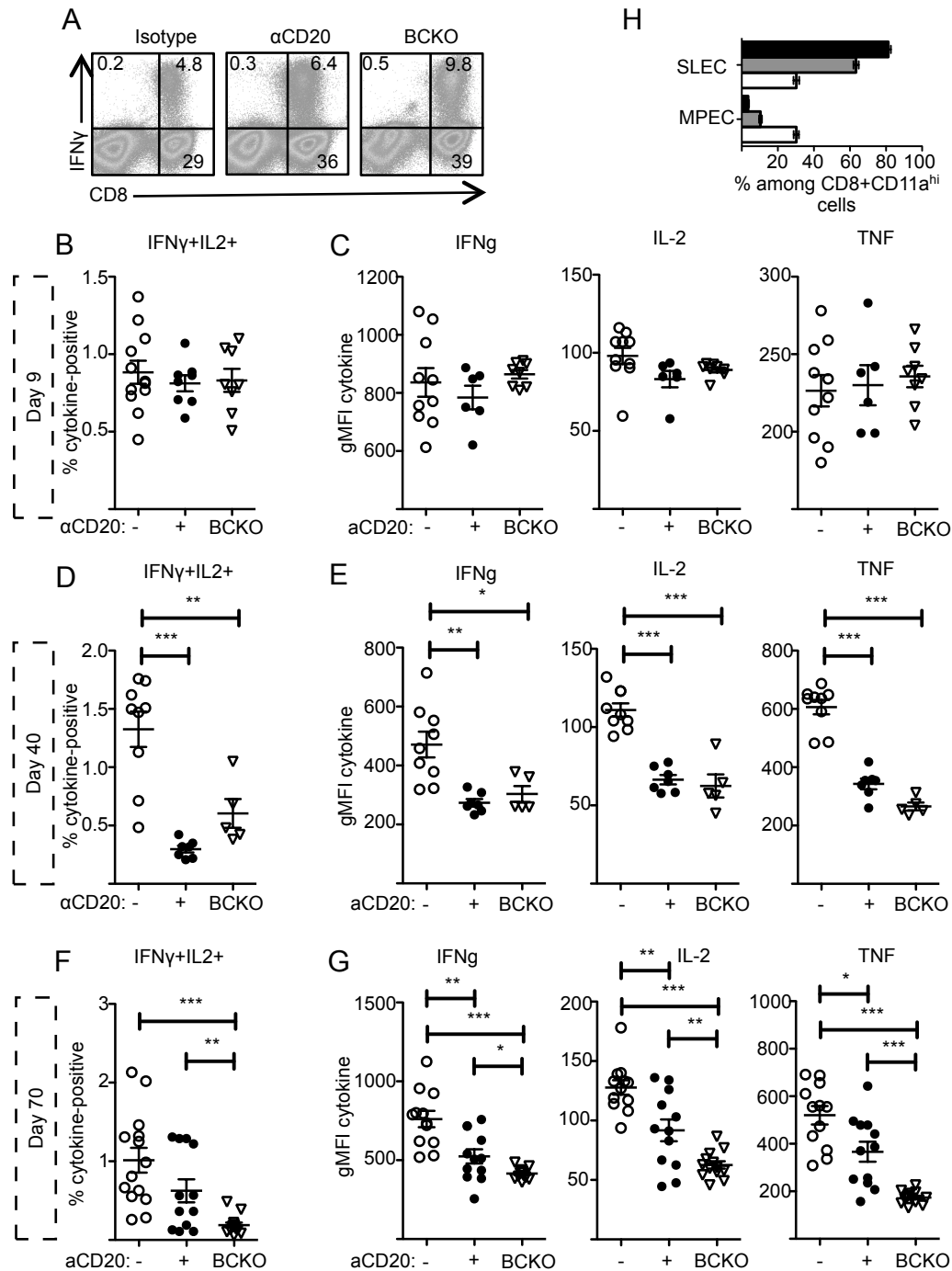**Supplemental Figure 1**. Early B cell depletion reduces cytokine production by memory CD4+ T cells.

Additional analyses were performed using the same mice described in Figure 4 that were depleted of B cells before infection. SMARTA CD4+ T cell responses were evaluated by ICCS at day 9 or day 70 after infection. A group of muMT-/- (BCKO) mice are included for reference. (**A**) An illustration of the experimental plan. (**B**) SMARTA CD4+ T cell responses at day 9 post-infection. The graphs show the geometric fluorescence intensity of IFN (left) or IL-2 (right) staining by SMARTA CD4+ T cells. (**C**) SMARTA CD4+ T cell responses at day 70. The left graph shows the gMFI of IFNγ staining and the right graph shows the gMFI of IL-2 staining for the SMARTAs. Each symbol represents an individual mouse across 2 experiments. A two-tailed Student's t-test was used to evaluate significance with *P <0.05; **P <0.01; ***P <0.001.

Supplemental Figure 2. B cell depletion before infection reduces cytokine production by CD8 T cells.

The CD8+ T cell response in the mice described in Figure 4 were further characterized. B6 mice were treated with mouse anti-CD20 mAbs to deplete B cells or isotype control antibody at day-14 & day-7 before infection. The antibody-treated mice or MT-/- mice were engrafted with 2×10^4 SMARTA/Thy1.1+ CD4+ T cells at day -3 and then given LCMV-Armstrong. Spleen cells were analyzed for CD8+ T cell cytokine production at the indicated times after infection: day 9 (**A-C**), day 40 (**D-E**), and day 70 (**F-G**). (**A**) The dot plots are gated on all splenocytes and show CD8+ T cell expression of IFN in response to GP$_{33}$ peptide stimulation. (**B, D, F**). The percentage of CD8+ T cells that co-express IFN with IL-2 in mice given anti-CD20 (+) or isotype antibody (-) or in MT-/- mice (BCKO). (**C, E, G**) The geometric fluorescence intensity staining of GP33-responsive CD8+ T cells based on the ICCS assay. The left graphs show gMFI for IFN; the middle graphs show gMFI for IL-2 expression; the right graphs show gMFI of TNF expression. Each symbol represents an individual mouse, compiled from 2-3 experiments. A two-tailed Student's t-test was used to evaluate significance with *P <0.05; **P <0.01; ***P <0.001.